

Appl. No. : **10/712,212**
Filed : **November 13, 2003**

REMARKS

The February 16, 2005 Office Action was based upon pending Claims 1-16. The Examiner allowed Claims 1-9, rejected Claims 10-13, and objected to Claims 14-16. This Amendment amends Claims 10 and 14 and adds new Claims 35-37. Thus, after entry of this Amendment, Claims 1-16 and 35-37 are pending and presented for further consideration.

In the February 16, 2005 Office Action, the Examiner rejected Claims 10, 11 and 13 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,649,979 ("the Jang patent"). The Examiner further rejected Claim 12 under 35 USC § 103(a) as being unpatentable over Jang and further in view U.S. Patent No. 6,815,290 ("the Lin patent"). The Examiner further objected to Claims 14-16 as being dependent upon a rejected base claim.

The Examiner stated that the information disclosure statement filed November 13, 2003 fails to comply with the provisions of 37 CFR § 1.97, 37 CFR § 1.98, and MPEP § 609 because the reference by Sakao et al. does not contain a date. The Examiner has placed the reference in the file, but the information referred to therein has not been considered as to the merits.

Reconsideration of the pending claims, as amended, is therefore respectfully requested.

INFORMATION DISCLOSURE STATEMENT

The information disclosure statement filed November 13, 2003 fails to comply with the provisions of 37 CFR § 1.97, 37 CFR § 1.98, and MPEP § 609 because the reference by Sakao et al. does not contain a date. The Examiner has placed the reference in the file, but the information referred to therein has not been considered as to the merits.

Submitted concurrently herewith is a Supplemental Information Disclosure Statement and form PTO-1449 citing the Sakao et al. reference, which complies with the provisions of 37 CFR § 1.97, 37 CFR § 1.98, and MPEP § 609. Applicants respectfully request the Examiner to consider the pending claims in connection with the Sakao et al. reference in order to make it of record.

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REJECTION OF CLAIMS 10, 11, and 13 UNDER 35 U.S.C. § 102(e)

The Examiner rejected Claims 10, 11, and 13 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,649,979 ("the Jang patent").

Claim 10

Jang appears to disclose a MOSFET having a conductive layer patterned to form a horizontal surround gate surrounding a portion of the device region over the trench and being isolated from the side-wall of the trench by a four-sided spacer. See Figures 8, 8A, and 8B. The spacer is not part of the isolation trench.

In contrast, in an embodiment of the invention, an isolation trench filled with non-conductive material surrounds a transistor comprising a source, a drain, and a gate trench between the source and the drain. The gate trench has sidewalls comprising the non-conductive material, which are substantially free of the substrate material. Further, in an embodiment, the nonconductive sidewalls of the gate trench are formed at a point toward the middle of the gate trench and away from the isolation trench.

Because the reference cited by the Examiner does not disclose, teach, or suggest an isolation trench filled with non-conductive material surrounding a transistor, where the gate trench has sidewalls comprising the non-conductive material, which are substantially free of the substrate material, Applicant asserts that Claim 10 is not anticipated by Jang. Applicant therefore respectfully submits that Claim 10 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 10.

Claims 11 and 13

Claims 11 and 13, which depend from Claim 10, are believed to be patentable for the same reasons articulated above with respect to Claim 10, and because of the additional features recited therein.

REJECTION OF CLAIMS 12 UNDER 35 U.S.C. § 103(a)

The Examiner rejected Claim 12 under 35 USC § 103(a) as being unpatentable over Jang as applied to Claim 10 above, and further in view U.S. Patent No. 6,815,290 ("the Lin patent").

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Claim 12, which depends from Claim 10, is believed to be patentable for the same reasons articulated above with respect to Claim 10, and because of the additional features recited therein.

ALLOWABLE SUBJECT MATTER - CLAIMS 14-16

The Examiner stated that Claims 14-16 would be allowable if rewritten into independent form to include the limitations of the corresponding base claim and any intervening claims. With this amendment, Applicants have rewritten Claim 14 to include all the limitations of Claim 10. Applicants respectfully submit that amend Claim 14 is now in condition for allowance.

Claims 15 and 16, which depend from Claim 14, are believed to be patentable for the same reasons articulated above with respect to Claim 14, and because of the additional features recited therein.

NEW CLAIMS

New Claims 35-37 depend from amended Claim 14 and are believed to be allowable for the same reasons articulated above with respect to Claim 14, and because of the additional features recited therein.

New Claims 35-37 have been added to more fully define the Applicant's invention and are believed to be fully distinguished over the prior art of record.

CONCLUSION

Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. In light of the above remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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